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Application No.: 10/762,678

Case No.: 58388US004

REMARKS

Claims 1 to 21 are pending. No amendments to the claims are being proposed in this Response. Continued prosecution and reconsideration of the present application is respectfully requested in view of the remarks below.

§ 102 Rejections

Claims 1-5, 8, and 11-12 stand rejected under 35 USC § 102(b) as being anticipated by U.S. Patent 5,813,752 (Singer et al.). With respect to pending claims 1-4, the Office Action alleges Singer et al. teaches: an LED capable of emitting light (citing col. 3 lines 1-2 and FIG. 1); a layer of phosphor material having a major surface positioned to receive excitation light and emitting visible light when illuminated with the excitation light (citing col. 3, lines 37-40); and interference reflector means positioned to reflect at least some light emitted by the LED that has not passed through the layer of phosphor material, onto the major surface layer of phosphor material and transmitting at least some visible light emitted by the phosphor (citing col. 3, lines 40-44 and FIG. 1). Other citations to the Singer et al. reference are made regarding rejected claims 5, 8, 11, and 12. None of these rejections can be sustained.

With regard to pending claim 1, the Appeal Brief has already explained that the "interference reflector means" of that claim performs two functions: (1) it *reflects* at least some light emitted by the LED that has not passed through the layer of phosphor material, onto the layer of phosphor material, and (2) it *transmits* at least some visible light emitted by the phosphor. The LED-phosphor device of Singer et al., particularly the figure and passages thereof cited by the Examiner relating to short wavepass (SWP) filter 30, teach *neither* of these functions. In contrast to function (1), the SWP filter 30 of Singer et al. *passes* (transmits) short wavelength light emitted by the LED 16 to the phosphor layer – this is indicated by the wavy arrow in FIG. 1 of Singer et al. See col. 3 lines 33-36. In contrast to function (2), the SWP filter 30 of Singer et al. *reflects* visible light emitted from the phosphor layer 32 – this is indicated by the straight arrows in FIG. 1. See col. 3 lines 40-43. Since the SWP filter 30 described in Singer et al. does not perform the functions (1) and (2), it cannot be the "interference reflector means" recited in claim 1. Although Singer et al. describes other multilayer reflective stacks (such as another SWP filter in connection with FIG. 2, and long-wave pass (LWP) and band pass (BP) filters described in connection with FIGS. 3 and 4,

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some of which may satisfy the function (2)), none of them performs both functions (1) and (2) as recited in pending claim 1. Singer et al. thus fails to teach the "interference reflector means" of claim 1, and cannot anticipate that claim. The rejection of claim 1 should be withdrawn.

Pending claim 2 recites "an interference reflector positioned to reflect at least some light emitted by the LED that has not passed through the layer of phosphor material, onto the layer of phosphor material." A careful review of the passages and figure (FIG. 1) of Singer et al. cited in the Office Action reveals no interference reflector positioned in the recited manner. Singer et al.'s SWP filter 30 shown in FIG. 1 is described as *passing* (transmitting) visible light emitted by the LED, not reflecting it. None of the other SWP, LWP, or BP filters taught in Singer et al. are configured or positioned as set forth in claim 2. For example, the LWP filter of Singer et al.'s FIG. 3 is described as "reflect[ing] UV light which is not absorbed by the phosphor grains back to the phosphor for another opportunity to be absorbed", but as seen in FIG. 3 it only reflects such light after it has already passed through the layer of phosphor material. Since Singer et al. fails to teach an interference reflector positioned to reflect light in the manner set forth in pending claim 2, it cannot anticipate that claim. The rejection of claim 2 should be withdrawn.

Pending claim 3 depends from either claim 1 or 2, and recites that the layer of phosphor has a major surface from which light is emitted toward an output end of the light source, and further recites that the light emitted by the LED that has not passed through the layer of phosphor material is reflected onto such major surface of the layer of phosphor material. The Office Action misses the point by simply stating that the "layer of phosphor material 32 has a major surface positioned to receive excitation light and emitting visible light when illuminated with the excitation light (col. 3, lines 37-40)". The point is not simply that the layer of phosphor material has a major surface, or that the major surface is positioned to receive excitation light. Claim 3 specifies a particular major surface, namely, one from which light is emitted toward an output end of the light source. For the embodiment of Singer et al.'s FIG. 1, that would be the uppermost (flat) surface of the phosphor layer 32. However, claim 3 specifies more -- that a particular light component is reflected onto that major surface -- and this is entirely absent from Singer et al.'s FIG. 1. (The particular light component is the light emitted by the LED that has not passed through the layer of phosphor material, reflected onto the major surface of the phosphor layer by the interference reflector means (claim 1) or by the interference reflector (claim 2).) Since Singer et al. fails to teach a phosphor

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layer having a major surface that satisfies the requirements of claim 3, it cannot anticipate that claim. The rejection of claim 3 should be withdrawn.

The remaining claim rejections under 35 U.S.C. § 102(b) cannot be sustained at least because claims 4, 5, 8, 11, and 12 each depend directly from claim 2 and incorporate all of its limitations, and Singer et al. fails to teach all of those limitations as explained above. The rejection of claims 4, 5, 8, 11, and 12 should be withdrawn.

With regard to claim 11, Applicants disagree that the cited passage of Singer et al. (col. 2, lines 35-41) teaches segmenting the phosphor material layer of any individual light emitting device. The passage describes obtaining a full color display by using an array of light emitting devices, and says nothing about segmenting the phosphor material layer of a particular light emitting device.

§ 103 Rejections

The Office Action rejected claims 6, 7, 9, and 13 as obvious (35 USC § 103(a)) over Singer et al., alleging that changes in the shape of a product are obvious, citing *In re Dailey* [sic: *In re Dailey and Eilers*], 149 USPQ 47 (CCPA 1966) and *Glue Co. v. Upton*, 97 US 3 (1878). These rejections cannot be sustained substantially for the reasons provided in the Appeal Brief in connection with claim 7.

First, the cases cited by the Examiner do not by any means stand for the broad proposition that every modification of the shape of a known product or a component thereof is *per se* unpatentably obvious. *Glue Co.* dealt with glue material, where the prior art disclosed a glue composition in the form of hard, angular flakes, and the alleged invention was directed to glue material of the same composition but in pulverized form. *Glue Co. v. Upton*, 97 US 3, 4. The Supreme Court held that such a change in form was insufficient for patentability. *Id* at 6. *In re Dailey and Eilers* dealt with a disposable infant nursing container having a collapsible portion, where the prior art disclosed a container similar to the claim but where the shape of the top and bottom sections was not "a portion of a sphere less than a hemisphere" as in the proposed claim. *In re Dailey and Eilers*, 149 USPQ 47, 48-49. The Court of Customs and Patent Appeals held that the difference in configuration was unpatentably obvious. *Id* at 50. These cases dealt with issues pertaining to specific types of articles, and cannot be read to stand for the proposition that any modification in shape of a known device or component thereof is patentably obvious. In

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contrast to glue particles or baby bottles, in the field of optics even subtle changes in the shape of a reflector can have major effects on its functionality. This is particularly true with respect to claims 6, 7, and 9, because the focusing properties of a non-planar reflector, or an ellipsoidal reflector, or a reflector shaped as a surface of revolution can be very different from those of a planar reflector.

Second, the Examiner has failed to establish a *prima facie* case of obviousness, at least because the Office Action provides no evidence showing why one of ordinary skill would be motivated to modify the Singer et al. reference to produce the features of the rejected claims. For example, why would one modify any of Singer et al.'s multilayer reflective stacks to be non-planar, or ellipsoidal, or in the shape of a surface of revolution, particularly when Singer et al.'s SWP, LWP, and BP filters are consistently depicted in the drawings as substantially flat bodies in a sandwich arrangement with other flat bodies? The Court of Appeals for the Federal Circuit has cautioned against hindsight-based obviousness analyses, insisting that evidence must be presented by the Examiner to support the obviousness determination:

"As applied to the determination of patentability *vel non* when the issue is obviousness, 'it is fundamental that rejections under 35 U.S.C. § 103 must be based on evidence comprehended by the language of that section'."

In re Lee, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002).

"When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness."

Id.

"The factual inquiry whether to combine references must be thorough and searching.' It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with."

Id.

The Examiner's blanket assertion that changes in shape of a product are obvious is insufficient evidence to support a *prima facie* obviousness determination. The rejection of claims 6, 7, 9, and 13 should be withdrawn.

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The rejection of claims 6, 7, 9, and 13 should also be withdrawn because these claims incorporate (directly or indirectly) all of the limitations of independent claim 2, which has been shown to be patentable for the reasons given above.

The Office Action also rejected dependent claims 10, 14-19, 20, and 21 as obvious (35 USC § 103(a)) over Singer et al. in view of a variety of secondary references, including U.S. Patent 5,959,316 (Lowery), U.S. Patent 6,717,348 (Takahashi), and U.S. Patent 6,652,996 (Steklenski et al.). Each of these claims depends directly or indirectly from independent claim 2. Yet, none of the secondary references remedy the shortcoming of Singer et al. with respect to "an interference reflector positioned to reflect at least some light emitted by the LED that has not passed through the layer of phosphor material, onto the layer of phosphor material." Since none of the applied references teach this feature, no proper combination of the references can render the dependent claims obvious. The rejection of claims 10, 14-19, 20, and 21 should thus be withdrawn.

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CONCLUSION

In view of the foregoing, it is submitted that the application is in condition for allowance, the early indication of which is earnestly solicited.

Respectfully submitted,

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Date

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